

Remarks

Claims 1-13 and 15-21 were pending.

Claims 1-13 and 15-21 are cancelled.

Claims 22-35 are new.

The application now contains claims 22-35.

All claims are fully supported by the original claims.

Claim 22 is supported by now cancelled claims 1, 2 and 18. The major difference between instant claim 22 and cancelled claim 1 is that A1 and A2 are limited to definitions of claim 18 where A1 and A2 are pyridyl substituted by at least one aromatic amine.

Additional support for claims 22-26 is found in now cancelled claims 2-4 and 19. The major difference between instant claim 24 and cancelled claim 3 is that A1 and A2 are limited to definitions where A1 and A2 are pyridyl substituted by at least one aromatic amine.

Support for claims 27-35 is found in now cancelled claims 5-10. the major differences in these claims is that whereas now cancelled claims 5-9 were drawn to host/guest compositions, instant claims 30-36 are drawn to EL devices containing the host/guest compositions.

Much of the deleted matter above was due to Examiner's restriction which material Applicants may reclaim in subsequent divisional applications.

No new matter is added.

Restriction

The instant claims all comply with the restriction and Applicants election of claims 1-13 and 15-21 drawn to compounds of formula I wherein A¹ and A² are pyridines. Applicants are puzzled by the statement Applicants' previous reply did not point out supposed errors. Applicants respectfully point to page 21 and 22 of the Amendment mailed November 30, 2008. However, given the restricted scope of the instant claims these arguments are moot.

Applicants note that elected the compound G-13 of Example 4 on page 58 of the instant specification is encompassed by all of the instant claims.

Rejections

Claims 1, 2, 3 and 18, correlated to instant claims 22-25, are rejected under 35 USC 103(a) as obvious over Langhals et al, US 5,354,869, in view of JP-A2 9003448 and US 5,571,359.

Claims 1, 3, 4 and 19, correlated to instant claims 22-26, are rejected under 35 USC 103(a) as obvious over EP 1,087,005 in view of Langhals et al, US 5,354,869.

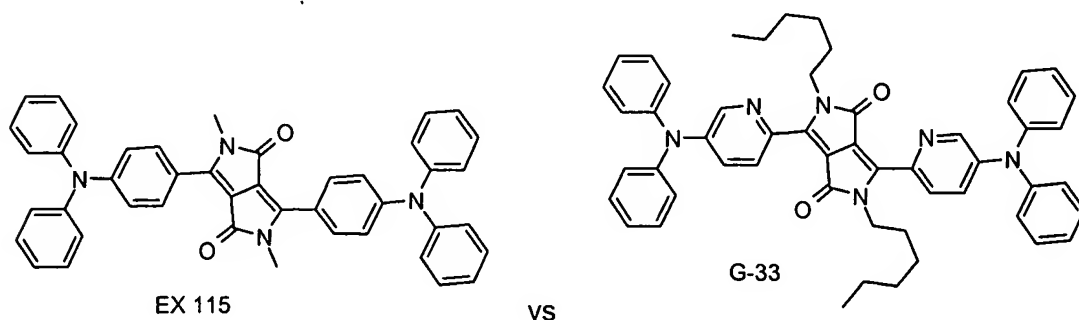
Claims 1, 5-10, 13, 15-17 and 20-21, correlated to instant claims 22 and 27-35, are rejected under 35 USC 103(a) as obvious over EP 1,087,006 in view of Oxtoby et al, Principals of Modern Chemistry.

Claims 1, 11 and 12 are rejected under 35 USC 103(a) as obvious over DE 4435211 in view of US 4,415, 685.

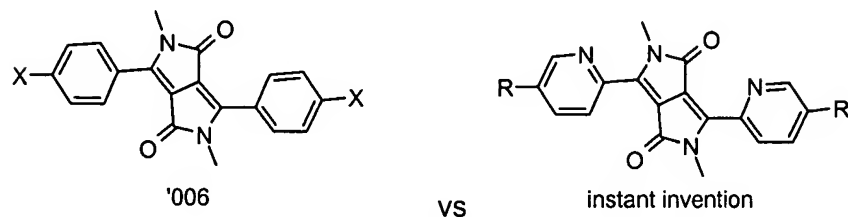
Applicants respectfully traverse the rejections.

The instant invention provides DPP compounds substituted at the 3 and 6 position of the pyridyl which are of particular value in electroluminescent (EL) devices. Specifically, the instant claims as currently presented are to DPP compounds bearing arylaminopyridyl substituents which provide a particularly valuable emission as discussed below which is not provided by arylaminophenyl DPPs.

Regarding the rejections over EP 1,087,006 in view of Oxtoby - EP 1,087,006 discloses DPP compounds useful in electroluminescent devices. While there are similarities in certain substituents between the compounds of '006 and the compounds of instant formula I, '006 does not disclose pyridyl at A1 and A2. Most pertinent is the compound described in Example 115 of '006 which contains a diarylamino substituent. While the substituents on the A1 and A2 aromatic rings can be the same in '006 and the instant invention e.g., the G-33, page 34 of the instant specification:



the actual A1 and A2 rings, in fact, the core of the DPPs of '006 and the instant DPPs are quite different both chemically and electronically:



Applicants respectfully stress that the instantly claimed compounds have certain specific characteristics which provide unexpectedly ideal performance in electroluminescent devices. As the compounds were never previously prepared, this excellent activity was completely unknown and could not be surmised. This is illustrated in part by a comparison of the compound of Ex 115 in '006 with Luminescent Element 6 of the instant application.

In '006, the compound of Ex 115 together with Alq3 forms the light emitting layer of an EL device. In Luminescent Element 6 of the present application, the compound (G-33) together with Alq3 forms the light emitting layer.

The EL properties of the two devices are shown in the table below:

Example No	Emitting Material		EL properties	
	Host	Guest	Peak(nm)	Intensity(cd/m2)
Luminescent ¹⁾ Element 6	Alq3 (99%)	G-33 (1%)	626	5670
Example 127 ²⁾	Alq3 (98.6%)	Example 115 (1.4%)	611	6398

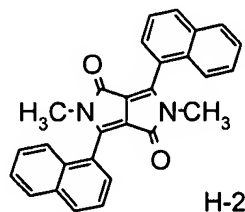
¹⁾ Present application,

²⁾ EP1087006.

As evident from the Table, the compound G-33 of the present application generates an EL emission peak at longer wavelength than the compound of Example 115 of EP1087006 with comparable intensity. The red emission at 626 nm of compound G-33 is close to the pure red color of NTSC for TV application. NTSC is defined as standard color of three primary colors (RGB) for display application. In contrast, the compound of Example 115 results in orange-red color (611 nm). This is not a trivial consideration in the preparation of such displays.

Applicants respectfully submit that despite the background information relative to light and organic chemistry provided by Oxtoby, nothing in Oxtoby would guide one to replace the phenyl substituents at the 3 and 6 positions of the DPP of '006 with pyridyl to arrive at the instant compounds with the particularly desired color characteristics. While it may be obvious for one to undertake some experimentation to modify existing structures for various reasons, Applicants contend that there is no teaching on which modifications to make, especially given the very broad disclosure and the numerous generic substituents of '006.

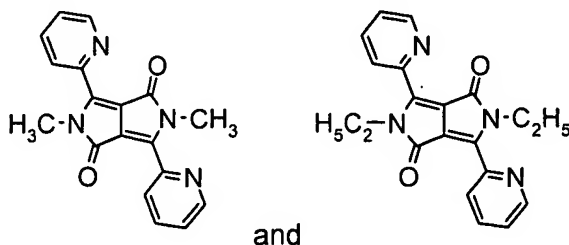
In addition to the exceptional results obtained with the instant compounds discussed above, and with particular emphasis on the host / guest complexes of claims 30-35, Applicants respectfully point to the table on page 65 wherein EL device 5, comprising the host guest complex using as guest the compound G33 and as host the compound H-2:



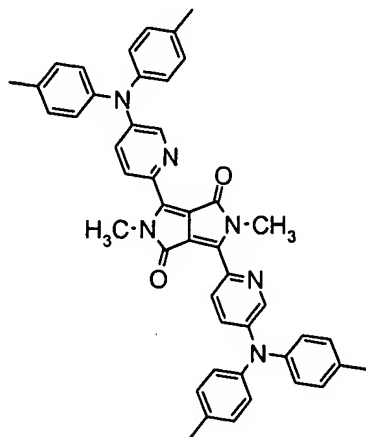
The intensity of the EL device with this particular host / guest complex has an intensity that is 3 times as high as the device of EL 6.

Applicants therefore submit that the specific compounds of the instantly amended claim would not have been obvious to one of ordinary skill in the art at the time the invention was made given the lack of any suggestion that the particular substitutions discovered by Applicants would provide the valuable properties found.

Regarding the rejections over Langhals et al, US 5,354,869, in view of JP-A2 9003448 and US 5,571,359 - US 5,354,869 provides the pyridyl compounds:



The compounds of instant claim 22 differ from those of '869 in that the instant compounds are substituted on the pyridyl rings by an aryl amine group, e.g.,



'869 provides no motivation for substitution on the pyridyl ring and there is no guidance as to what the impact an arylamino substituent might be. While '869 is not limited to its preferred embodiments, Applicants respectfully submit that as the preferred compounds of '869 are substituted by alkoxyphenyl, there is no teaching that would guide one to a pyridyl group substituted in particular by an arylamine.

Applicants respectfully note that JP-A2 9003448 is so extremely broad that the same substituents are listed for any of R1 to R4, i.e., instant R1, R2, A1 and A2. Applicants further suggest that there is no evidence that an arylamine substituted pyridyl substituent was contemplated in JP-A2 9003448.

US 5,571,359 discloses only that R1 and R2, i.e., instant A1 and A2, are each independently alkyl, arylalkyl, aryl, substituted or unsubstituted isocyclic or heterocyclic aromatic radicals with phenyl or naphthyl being preferred. Applicants respectfully submit that the mention of "isocyclic or heterocyclic aromatic radicals" does not provide any specific guidance to a pyridyl group, nor is there any suggestion of the instant arylamino substituted pyridine.

Applicants respectfully conclude that nothing in the combination of US 5,354,869, JP-A2 9003448 and US 5,571,359 would direct or motivate one to substitute the pyridyl DPP of '869 with the arylamine of the instant invention or which suggests the unexpectedly excellent performance of the instant compounds in electroluminescent devices.

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Regarding the rejections over EP 1,087,005 and Langhals et al, US 5,354,869 - Applicants respectfully note that '005 discloses compounds found in, or similar to, those of EP 1,087,006. While '005 discloses that one may place an arylamino substituent on a phenyl group at A1 and A2, there is no mention of pyridyl at A1 and A2 in '005, and nothing to suggest a reason for selecting an arylamino substituent over any of the many substituents therein for substitution of pyridyl. While US 5,354,869 provides DPP compounds wherein A1 and A2 are unsubstituted pyridyl, there is no substituted pyridyl therein nor teaching as to which substituents may have a significantly beneficial effect thereon.

Applicants respectfully aver that there is nothing in the combined art that would motivate one to pick one of a myriad of substituents disclosed in '005 for phenyl DPPs, let alone an arylamine substituent, and place it on the unsubstituted pyridyl DPP of '869.

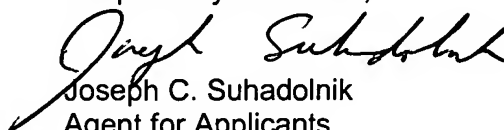
Regarding the rejections over DE 4435211 in view of US 4,415, 685, Applicants respectfully note that claims 11 and 12 are not reflected in the instant claims and that the incorporation of the material of claim 18 into claim 22 place all instant claims outside of DE 4435211 and US 4,415, 685.

Applicants respectfully suggest that the instant claims in their present condition provide compounds with unexpected properties of particular value for EL display devices. It is Applicants position that there is no suggestion in the art that these particular 3,6-arylamino-pyridyl DPP compounds would possess these characteristics. Applicants further submit that despite the vast material generically suggested by the art, there is no teaching that would lead one to the particular compounds of the instant claims or the EL devices which incorporate them.

Applicants respectfully submit that all rejections have been addressed and are overcome and kindly ask that they be withdrawn and that claims 22-35 be found allowable. In the event that minor amendments will further prosecution, Applicants request that the examiner contact the undersigned representative.

Ciba Specialty Chemicals Corporation
Patent Department
540 White Plains Road
P.O. Box 2005
Tarrytown, NY 10591-9005
Tel. (914) 785-2973
Fax (914) 785-7102

Respectfully submitted,


Joseph C. Suhadolnik
Agent for Applicants
Reg. No. 56,880
filed under 37 CFR 1.34(a)